

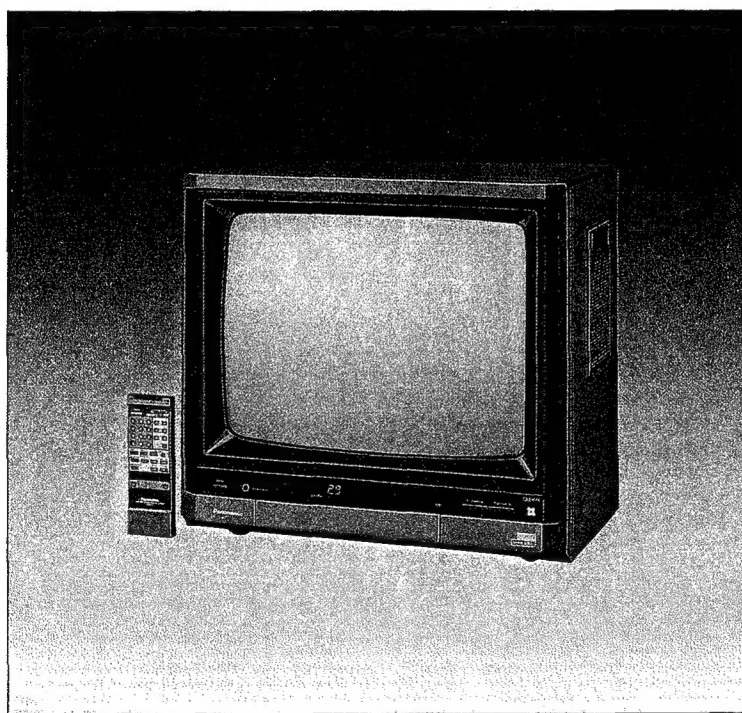
**Panasonic®**

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# **Color Television**

**with Remote Control**

**Model No. TC-520NPR**



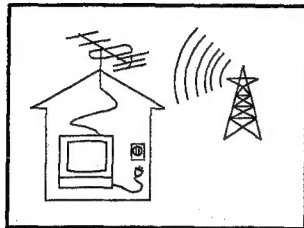
## **Operating Instructions**

Read these instructions completely before operating this set.

# Dear Panasonic Customer:

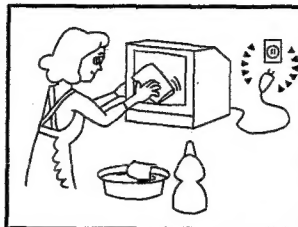
Welcome to our Panasonic family of customers. It is our desire that you have many years of enjoyment from your new color television set.

## Power Source and TV System



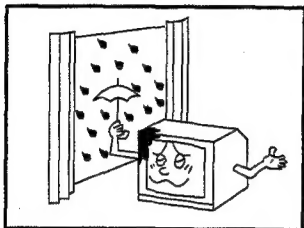
This TV set can be operated on 120 ~240V, 50/60Hz. It is designed exclusively for broadcast system in PAL B, G, I and NTSC (M). It can not receive other TV broadcast systems of foreign stations.

## Cabinet and Picture Tube (Front Screen Glass) Care

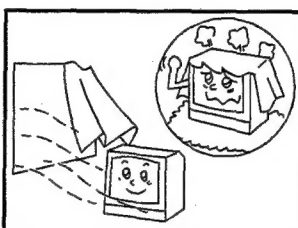


The cabinet and picture tube (front screen glass) can be kept in good condition by simply wiping with a clean, soft cloth moistened with mild detergent and water. Do not use solutions containing benzol, petroleum or a chemical cloth. For safety, turn the TV set off when for cleaning it.

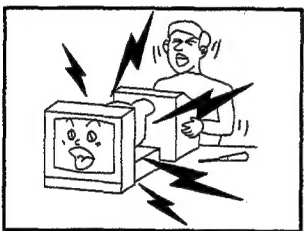
## Warning and Cautions



To prevent damage which may result in fire or shock hazard, do not expose this TV set to rain or excessive moisture.

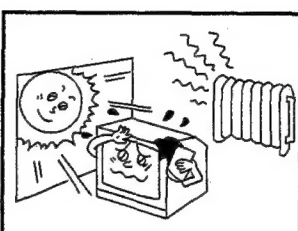


Adequate ventilation is essential to prevent failure of electrical components.

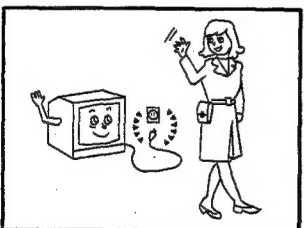


### High Voltage:

Live parts are accessible when the rear cover is removed. Do not remove the rear cover.



Avoid exposing the TV set to direct sunlight and other sources of heat.



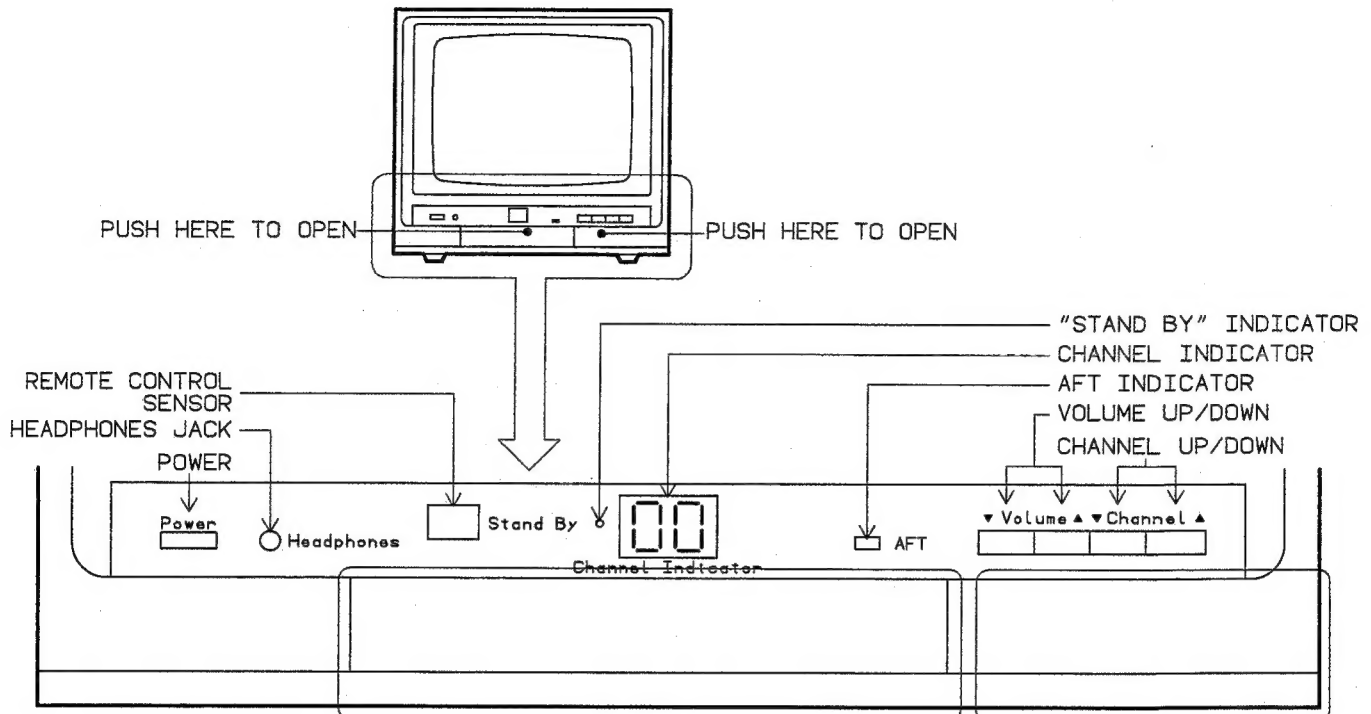
Remove the plug from the wall outlet when the TV set is not used for a prolonged period of time.

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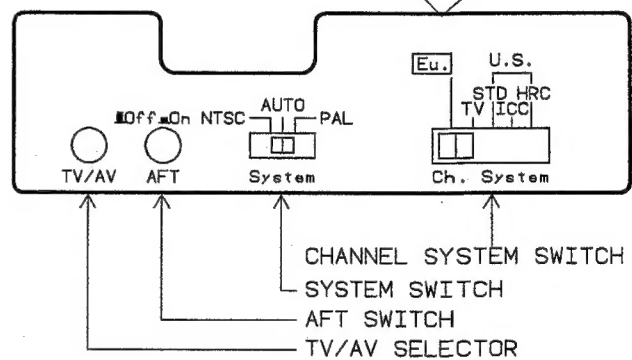
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# Location of Controls

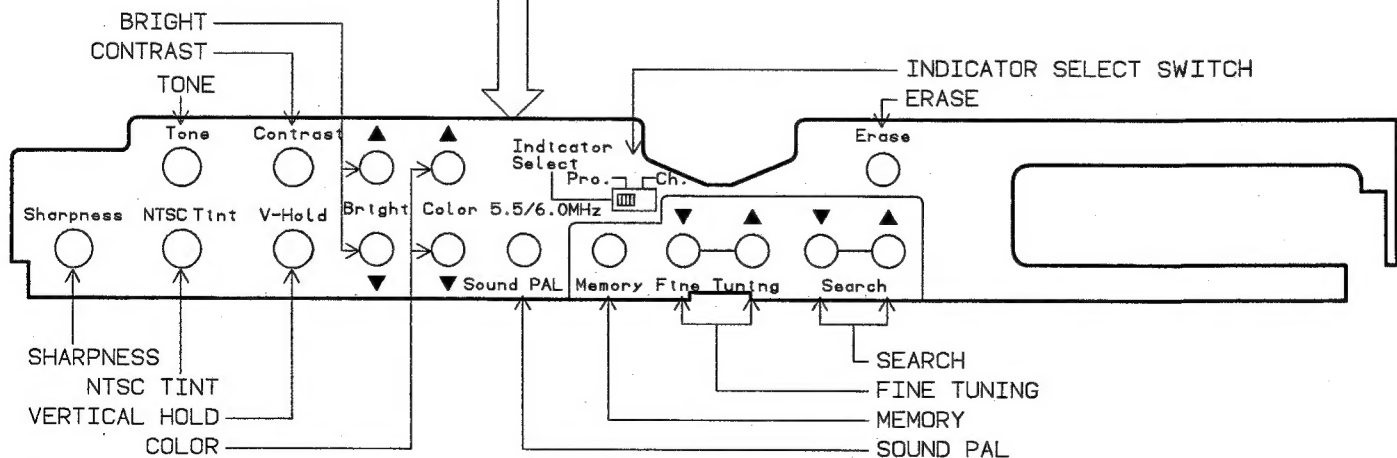
(Front View)



(Behind the Door (Right))

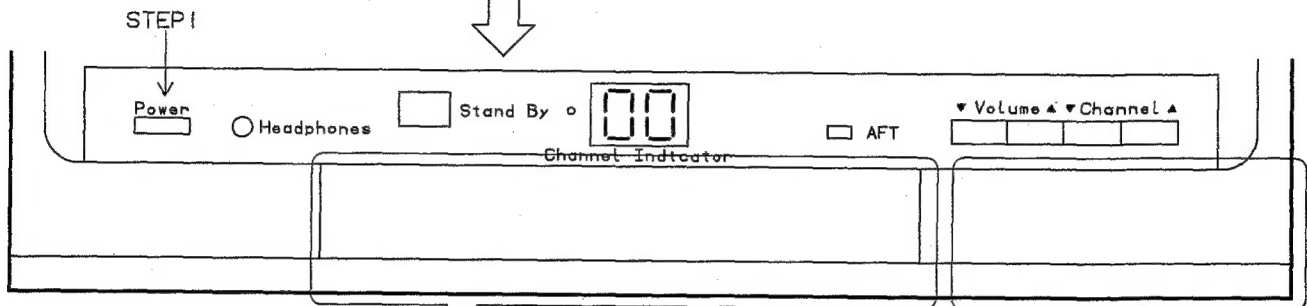
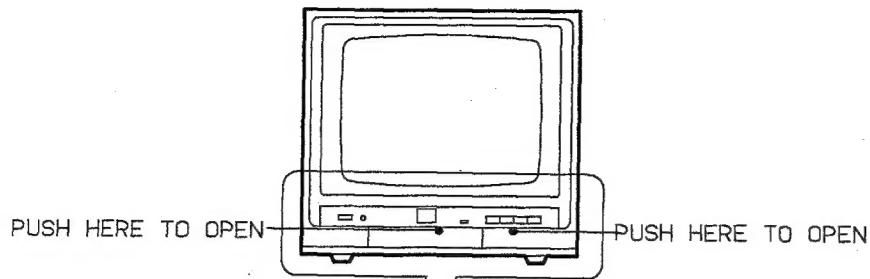


(Behind the Door (Left))

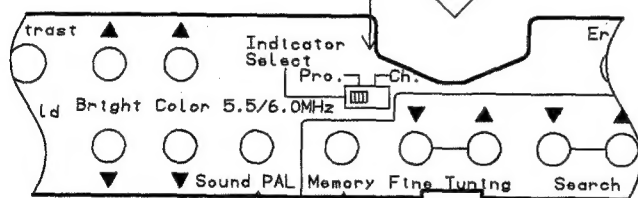


# Tuning Procedure (Pattern 1) To Program with Direct Channel Button

(Front View)

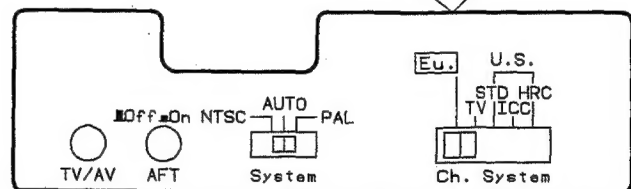


(Behind the Door (Left))



STEP 7 STEP 8

(Behind the Door (Right))

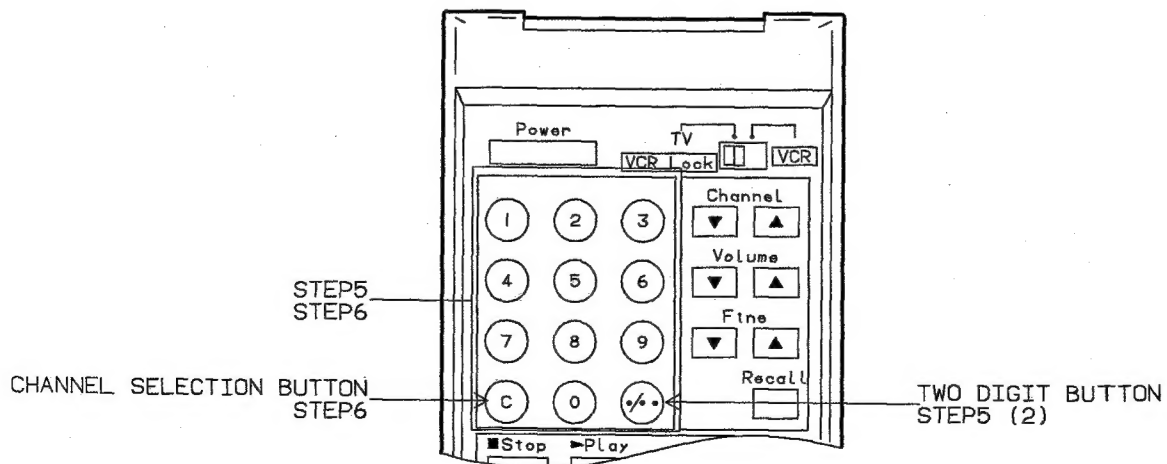


STEP 5

STEP 2

STEP 3

(Remote Control Transmitter)



## Tuning Procedure (Pattern 1) To Program with Direct Channel Button

### STEP 1

Push the "Power" button to switch the receiver ON.

(The channel Indicator will illuminate.)

### STEP 2

Set the "System" switch to the "AUTO" position.

### STEP 3

Set the "Ch. System" switch to the desired position.

### STEP 4

Set the "Indicator Select" switch to the "Pro." position.

(Channel Indicator ..... green)

### STEP 5

#### Note:

The TV/VCR selector should be set to the "TV" position.

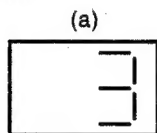
Select the desired program number with remote control.

#### Direct Program Number Selection

(1) One digit program number (Program No.0 - 9)

Ex.1 : Selecting program "3"

(a) Press the "3" button.



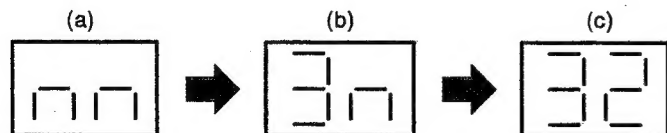
(2) Two digit program number (Program No.10 - 39)

Ex.2 : Selecting program "32"

(a) Press the "Two digit" button first.

(b) Press the "3" button second.

(c) Press the "2" button third.



#### Note:

This is only the indication of the program number, not the actual channel number.

### STEP 6

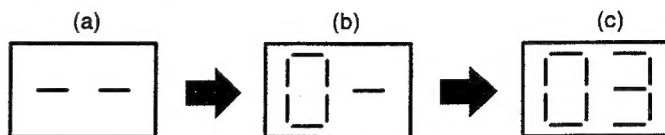
Select the actual channel number, which can be received in your area, directly with remote control.

Ex.1 : Selecting channel "3"

(a) Press the "Channel Selection" button first.

(b) Press the "0" button second.

(c) Press the "3" button third.



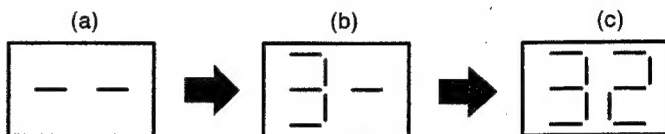
(The red indication changes to green in a few seconds.)

Ex.2 : Selecting channel "32"

(a) Press the "Channel Selection" button first.

(b) Press the "3" button second.

(c) Press the "2" button third.



(The red indication changes to green in a few seconds.)

### STEP 7

If the sound level is low or noisy, push the "Sound PAL" button to improve.

### STEP 8

Push the "Memory" button to memorize the selected channel number.

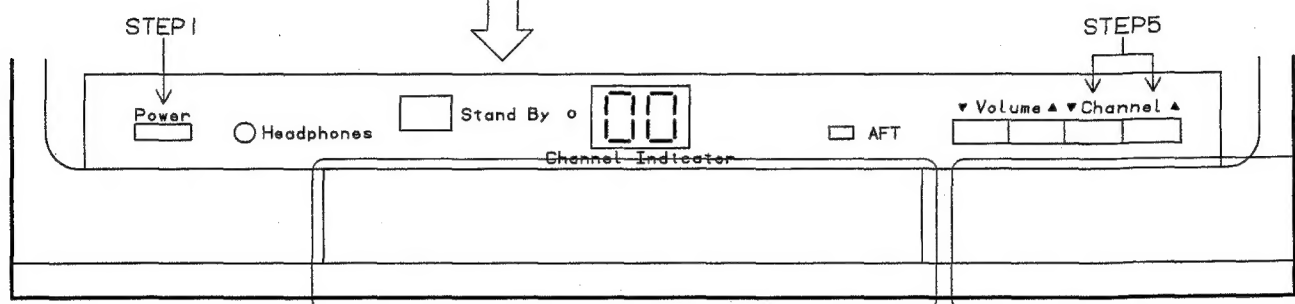
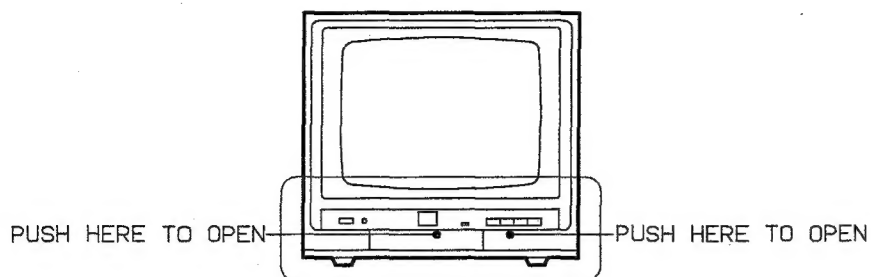
### STEP 9

Repeat steps 5 through 8 to tune the remaining channels.

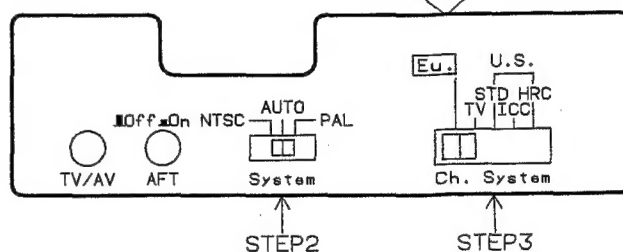
A maximum of 40 channels can be programmed.

# Tuning Procedure (Pattern 2) To Program with Search Button

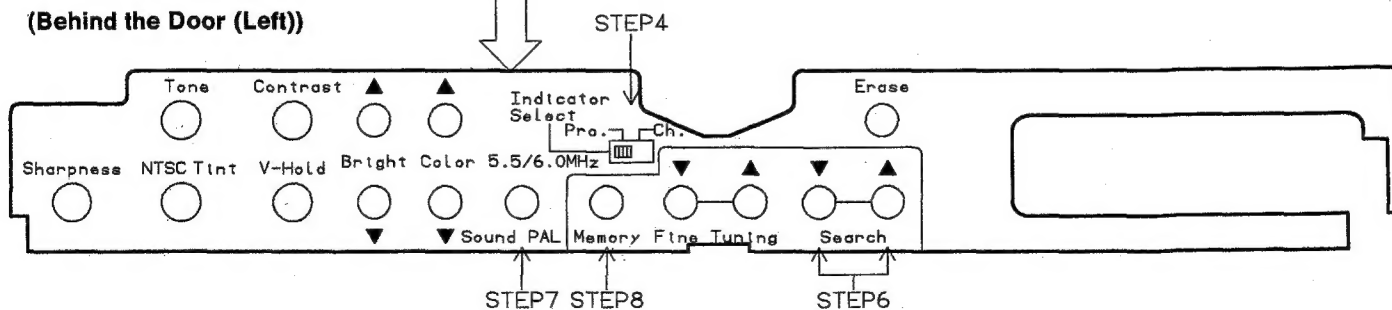
(Front View)



(Behind the Door (Right))



(Behind the Door (Left))



## Tuning Procedure (Pattern 2) To Program with Search Button

### STEP 1

Press the "Power" button to switch the receiver ON.  
(The channel Indicator will illuminate.)

### STEP 2

Set the "System" switch to the "AUTO" position.

### STEP 3

Set the "Ch. System" switch to the desired position.

### STEP 4

Set the "Indicator Select" switch to the "Pro." position.  
(Channel Indicator ..... green)

### STEP 5

Press either the Up or Down "Channel" button to select the desired program number.

#### Note:

This is only the indication of the program number, not the actual channel number.

### STEP 6

Tune to the desired channel by pressing either the Up or Down "Search" button.

The actual channel number is shown in red by pressing the "Search" button.

The search function does not work continuously.

To change the channel, press the "Search" button each time.

(The red indication changes to green in a few seconds.)

#### Note:

If the actual channel number is not memorized in the program number, channel search will start from "00" each time the Up or Down "Channel" button is pressed.

### STEP 7

If the sound level is low or noisy, press the "Sound PAL" button to improve.

### STEP 8

Press the "Memory" button to memorize the selected channel number.

### STEP 9

Repeat steps 5 through 8 to tune the remaining channels.

## Direct Actual Channel Selection

Follow steps 1 through 3 above.

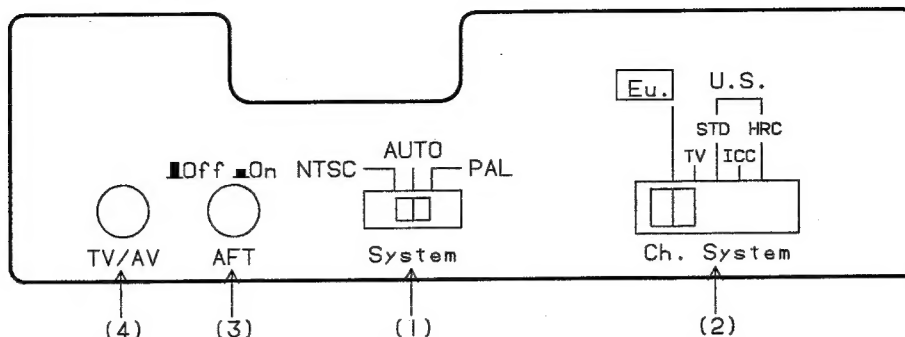
1. Set the "Indicator Select" switch to "Ch." position.  
(Channel Indicator ..... red)
2. Press either the Up or Down "Channel" button on the set to select the desired actual channel.

#### Note:

Please refer the page 13 for Direct Actual Channel Selection with remote control.

# General Operation

(Behind the Door (Right))



## (1) System Switch (NTSC, AUTO, PAL)

### AUTO

When the System Switch is set to this position, you can receive PAL (B.G.I) and NTSC broadcasting systems automatically.

### PAL

This setting is effective only for the PAL (B.G.I) broadcasting system.

### NTSC

This setting is effective only for the NTSC broadcasting system.

## (2) Channel System Switch

| Position    |     | Receiving Signal                                      | Receiving Channels |               | Actual Channel Number Indication |         |         |
|-------------|-----|-------------------------------------------------------|--------------------|---------------|----------------------------------|---------|---------|
| Eu.(Europe) |     | TV broadcasting in PAL B.G.I<br>(AFN-EUROPE by NTSC)  | VHF                | 0 (AUSTRALIA) | 01                               |         |         |
|             |     |                                                       |                    | E2 ~ E12      | 02 ~ 12                          |         |         |
|             |     |                                                       |                    | A ~ H (ITALY) | 13 ~ 20                          |         |         |
|             |     |                                                       | UHF                | E21 ~ E69     | 21 ~ 69                          |         |         |
|             |     |                                                       | CATV               | S1 ~ S3       | 74 ~ 76                          |         |         |
|             |     |                                                       |                    | M1 ~ M10      | 80 ~ 89                          |         |         |
|             |     |                                                       |                    | U1 ~ U10      | 90 ~ 99                          |         |         |
| U.S.        | TV  | TV broadcasting in the U.S.                           | VHF                |               | 2 ~ 13                           | 02 ~ 13 |         |
|             |     |                                                       | UHF                |               | 14 ~ 69                          | 14 ~ 69 |         |
|             | STD | Standard Cable TV Signal                              | CATV               | VHF<br>(LOW)  | 5A                               | 01      |         |
|             |     |                                                       |                    |               | 2 ~ 6                            | 02 ~ 06 |         |
|             | ICC | ICC Cable TV signal<br>(Incremental Coherent Carrier) |                    | VHF<br>(HIGH) | 7 ~ 13                           | 07 ~ 13 |         |
|             |     |                                                       |                    |               | MID                              | A ~ I   | 14 ~ 22 |
|             |     |                                                       |                    |               | SUPER                            | J ~ W   | 23 ~ 36 |
|             | HRC | HRC Cable TV Signal<br>(Harmonic Related Carrier)     |                    | MID           | A2                               | 98      |         |
|             |     |                                                       |                    |               | A1                               | 99      |         |

## (3) AFT

If the picture has stripes or any interference, press the "AFT" button to turn ON, in many cases, it may improved.

"AFT" Indicator (green) will illuminate.

Press the button again to turn OFF.



## General Operation

### (4) TV/AV Selector

#### "TV" mode

To receive ordinary broadcasting stations or for VCR playback when the RF output signal is applied to the antenna terminal.

#### TUNING PROCEDURE FOR RF OUTPUT SIGNAL OF VCR

##### Note:

To receive VCR playback when the RF output signal is applied to the antenna terminal:

VCR RF converter output : channel 3 or 4

1. Set the "System" switch to the "AUTO" position.
2. Set the "Ch. System" switch to the "Eu." position.
3. Set the "TV/AV Selector" to the "TV" mode.
4. Press the "AFT" button to the "ON" position.
5. Set the "Indicator Select" switch to the "Pro." position.
6. Press either the Up or Down "Channel" button to select the desired program number.
7. Tune to the VCR playback output signal by pressing either the Up or Down "Search" button.

**Note:** Actual channel number indication (red)

| Channel System Switch Position | VCR RF Converter Channel | Channel Indicator |
|--------------------------------|--------------------------|-------------------|
| Eu.                            | Ch 3                     | 04 or 14          |
|                                | Ch 4                     | 74                |
| TV                             | Ch 3                     | 03                |
|                                | Ch 4                     | 04                |

The actual channel number is shown in red by pressing the "Search" button.

The search function does not work continuously.

To change the channel, press the "Search" button each time.

8. Press the "Memory" button to memorize the selected actual channel number.

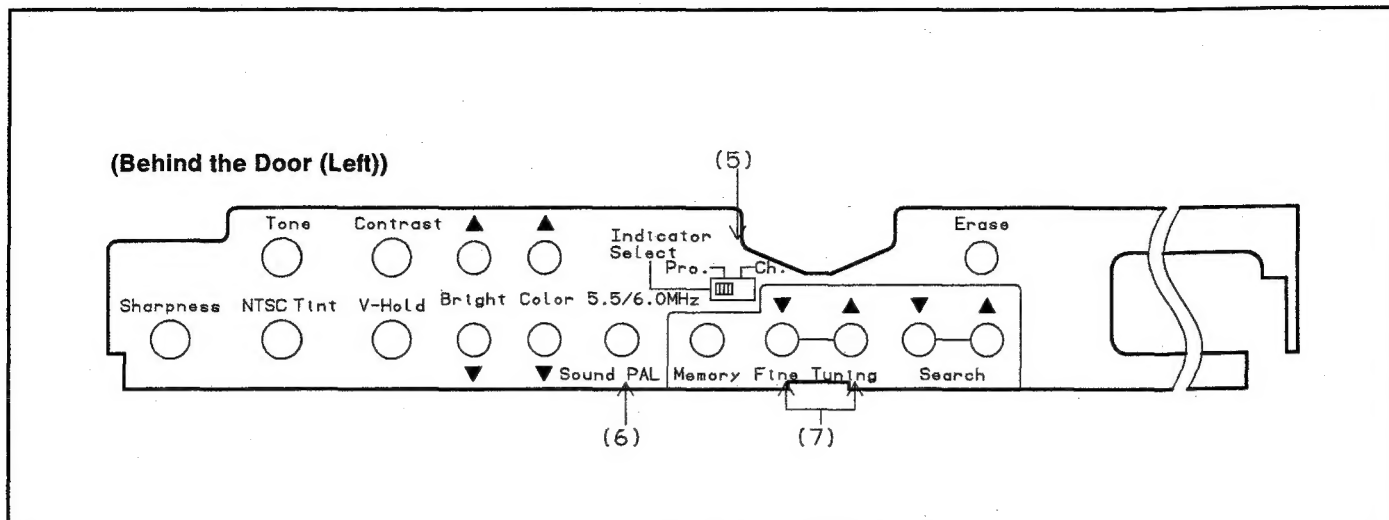
**Note:** Refer to "Tuning Procedure" on pages 4 and 6.

The reception signal can be taken out from the AUDIO OUT and VIDEO OUT terminals for recording or monitoring.

**"AV" (Audio-Visual) mode** ... The "AV" Indication (green) will illuminate in the Channel Indicator.

For VCR playback or monitoring when the composite signal is applied to the VIDEO IN and AUDIO IN terminals.

# General Operation



## (5) Indicator Select Switch

| Position | Contents                         | Indicator |
|----------|----------------------------------|-----------|
| Pro.     | Program Number Indication        | Green     |
| Ch.      | Actual Channel Number Indication | Red       |

## (6) Sound PAL

This selector button is effective only for the PAL broadcasting system.

If the sound level is low or noisy, press this button to select the actual TV broadcasting system.

5.5 MHz : TV broadcasting in CCIR B or G.

6.0 MHz : TV broadcasting in the U.K.

## (7) Fine Tuning

With this model, each time the "Memory" button is pressed, one channel is automatically fine-tuned and the exact tuning position is stored.

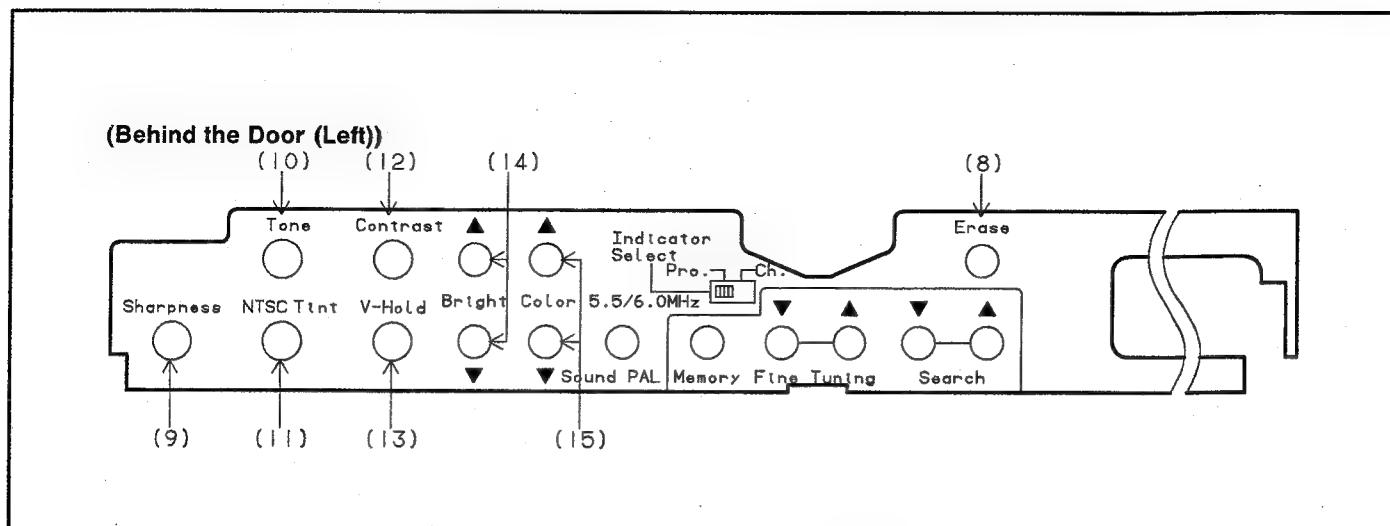
As a result, a stable picture is usually obtained.

If the stripes or some other interference appeared, it may be possible to improve the picture by pressing either the Up or Down "Fine Tuning" button.

This function operates only when the "AFT" button is in the "Off" position.

Be sure to select the correct channel before pressing the "Fine Tuning" buttons.

# General Operation



## (8) Erase

When the "Erase" button is pressed, the watched program will be canceled.

## (9) Sharpness

Adjust the sharpness of the picture.

## (10) Tone

Turn this control to the desired sound tonal quality.

## (11) NTSC Tint

This control can be used, when receiving NTSC signals.

It can be used to obtain the desired color effect in the picture.

## (12) Contrast

Turn this control to the desired contrast level.

## (13) Vertical Hold

Adjust this control, if the picture rolls either up or down.

## (14) Bright Up / Down

Press the "Bright" Up button to increase the brightness level.

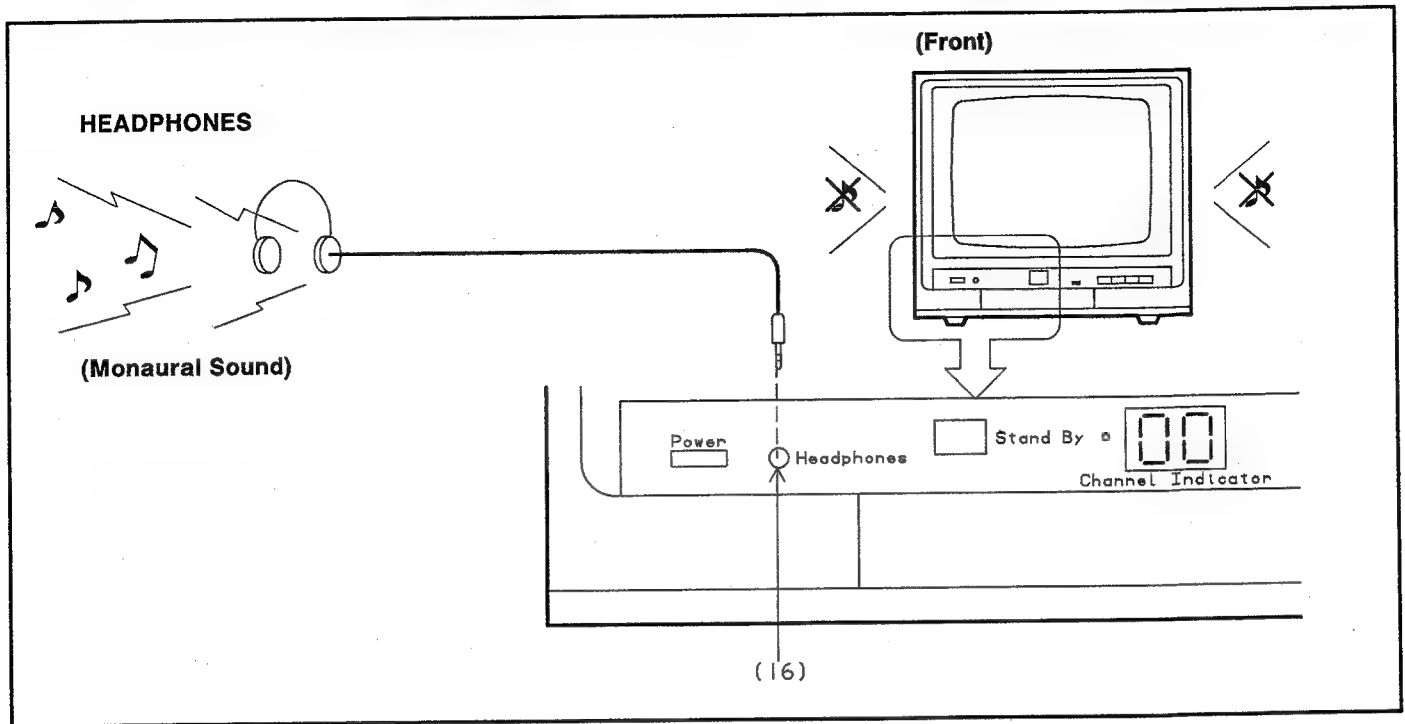
Press the "Bright" Down button to decrease the brightness level.

## (15) Color Up / Down

Press the "Color" Up button to increase the color (saturation) level.

Press the "Color" Down button to decrease the color (saturation) level.

## General Operation

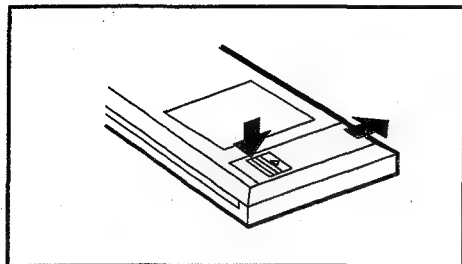


### (16) Headphones

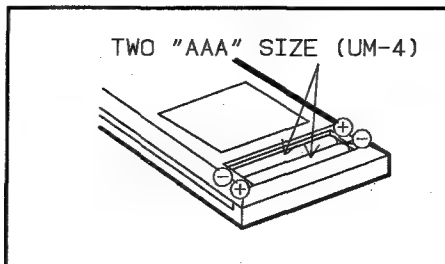
When the headphones plug is inserted into the Headphone Jack, no sound is heard from the speakers, and you can listen with the headphones only.

# Battery Replacement and Installation

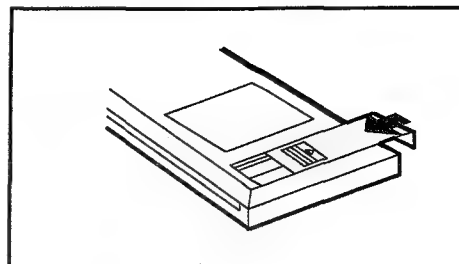
Batteries : Use two "AAA" size (UM-4) dry cells.



1. Open the cover.  
(Press down and slide the cover out.)



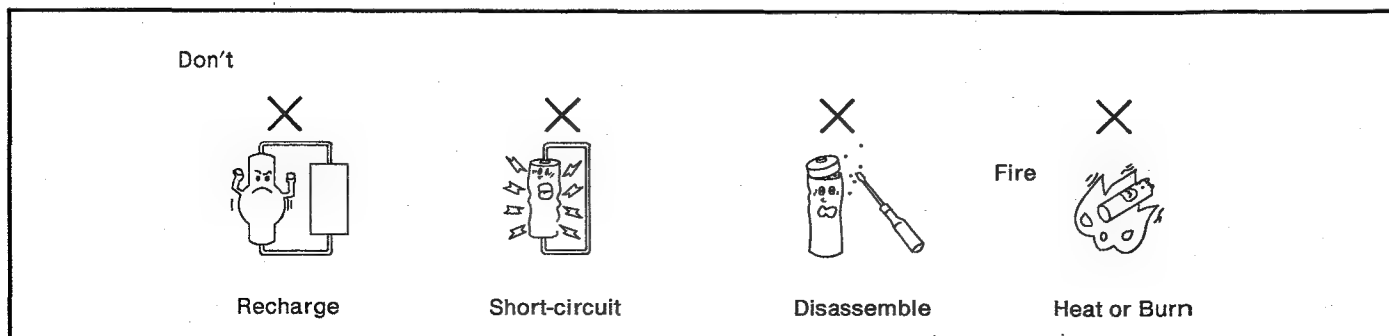
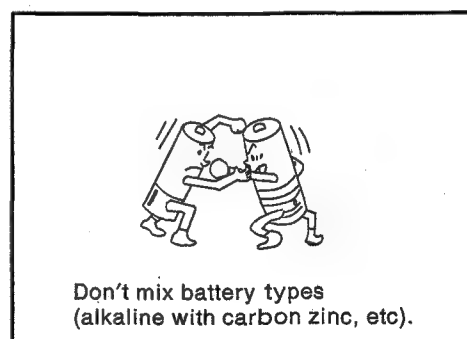
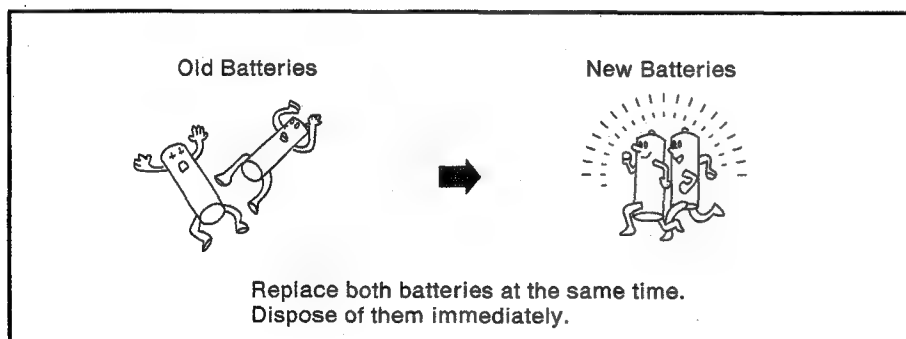
2. Replace the batteries.  
(Insert the batteries with the correct polarity as indicated by the (+) and (-) symbols.)



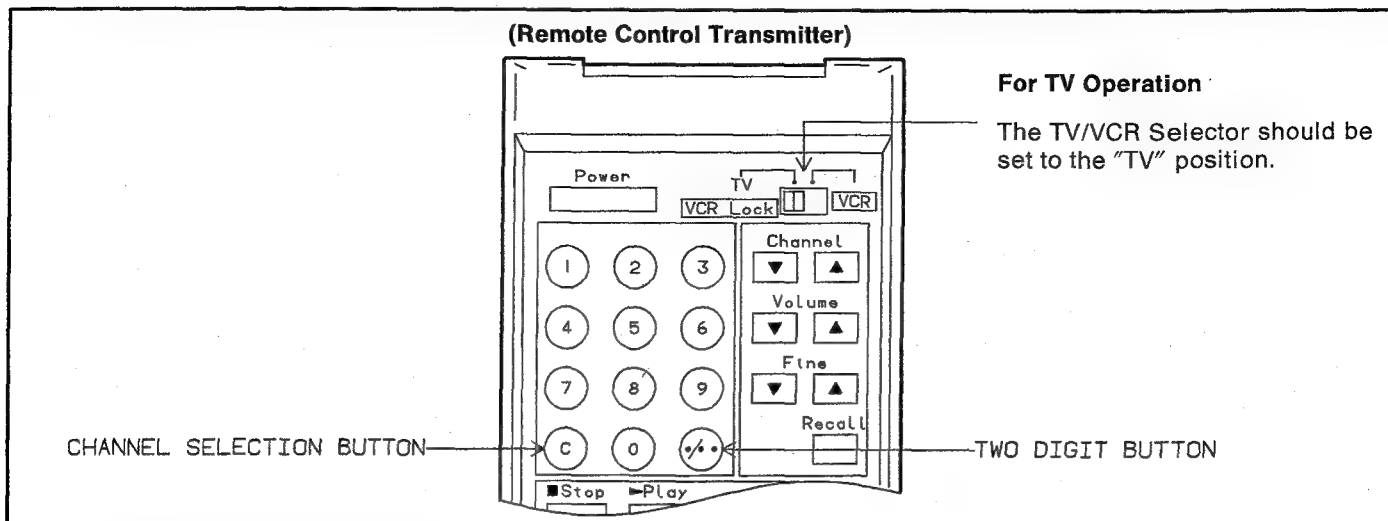
3. Replace the cover.  
(A snap-lock holds the cover in place.)

## Battery precautions

The incorrect use of batteries can cause electrolyte leakage which will corrode the remote control transmitter or cause the batteries to burst. The following precautions must be observed carefully.



# Remote Control Operation (for TV)



Set the "Indicator Select" switch to the "Ch." position.  
(For actual channel indication (red))

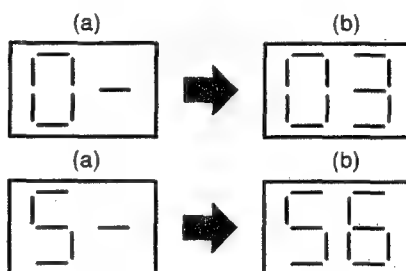
## 1. Direct Actual Channel Selection

Ex.1 : Selecting channel "3"

- (a) Press the "0" button first.
- (b) Press the "3" button second.

Ex.2 : Selecting channel "56"

- (a) Press the "5" button first.
- (b) Press the "6" button second.



## 2. Channel Up / Down

Press either the Up or Down "Channel" button to select the desired channel.  
(Un-programed channels will be skipped.)

Set the "Indicator Select" switch to the "Pro." position.  
(For programed number indication (green))

## 1. Direct Programed Channel Selection

(1) One digit program number

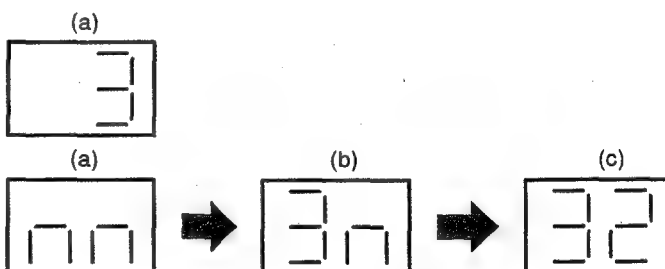
Ex. : Selecting program "3"

- (a) Press the "3" button.

(2) Two digit program number

Ex. : Selecting program "32"

- (a) Press the two digit button first.
- (b) Press the "3" button second.
- (c) Press the "2" button third.



## 2. Channel Up / Down

Press either the Up or Down "Channel" button to select the desired program number.  
(Un-programed channels will be skipped.)

## 3. Channel Selection

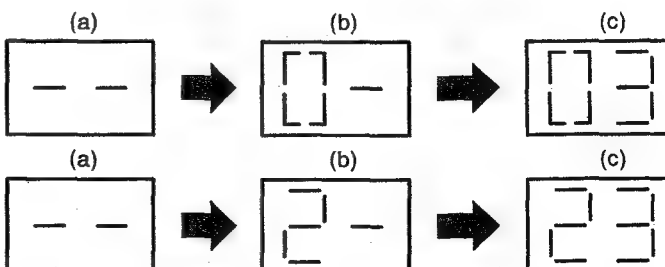
By pressing this button, the channel number can be selected directly.

Ex.1 : Selecting channel "3"

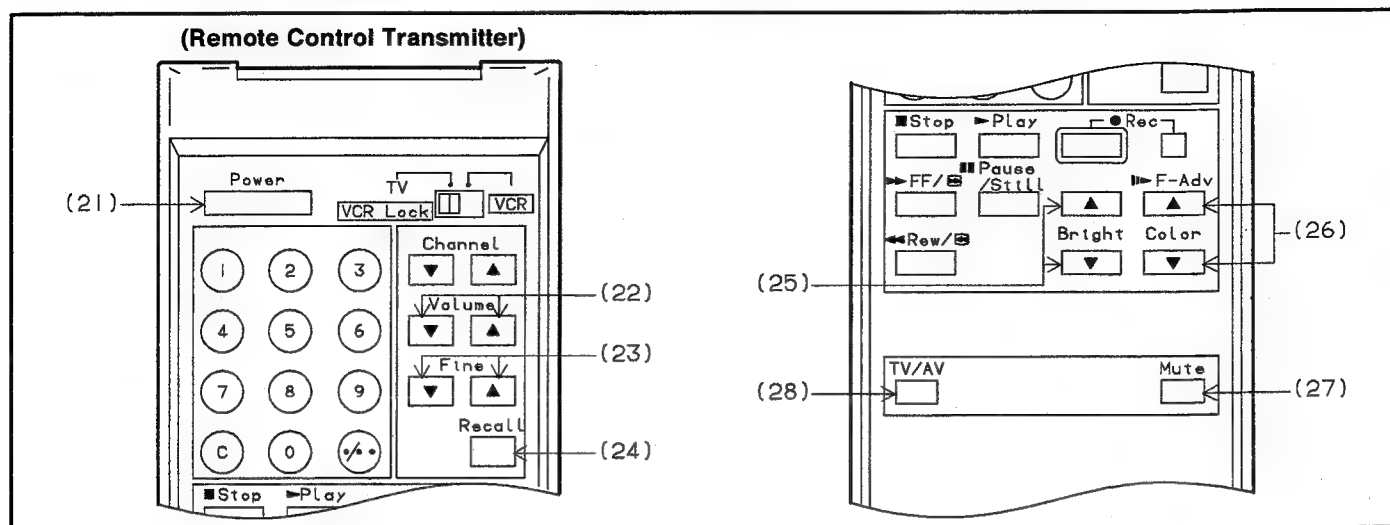
- (a) Press the Channel Selection button first.
- (b) Press the "0" button second.
- (c) Press the "3" button third.

Ex.2 : Selecting channel "23"

- (a) Press the Channel Selection button first.
- (b) Press the "2" button second.
- (c) Press the "3" button third.



# Remote Control Operation (for TV)



## (21) Power On/Off & Stand-by

Press the Stand-by to turn off the receiver temporarily and the receiver is in the stand-by condition. Illumination of the red lamp indicates the stand-by condition. Press again to turn the receiver on.

How to turn the receiver on when the set is in the stand-by condition.

1. Press the "Power" switch (TV set) once, and then press it again after a few seconds.

## (22) Volume Up / Down

Press the "Volume" Up button to increase the sound level.

Press the "Volume" Down button to decrease the sound level.

## (23) Fine Tuning

This function operates only when the "AFT" button is in "Off" position.

Use this button to eliminate or minimize the interference.

Detuned position can be memorized by pressing "Memory" button in the set.

## (24) Recall

While watching the TV program with programed indication, the actual channel number can be indicated by pressing the "Recall" button.

Ex. :  
Programed channel number "3"  
Actual channel number "23"

## (25) Bright Up / Down

Press the "Bright" Up button to increase the brightness level.

Press the "Bright" Down button to decrease the brightness level.

## (26) Color Up / Down

Press the "Color" Up button to increase the color (saturation) level.

Press the "Color" Down button to decrease the color (saturation) level.

## (27) Mute

Press this button once to mute the sound.

Press one of the following buttons once again to return to previously set sound level.

1. "Mute" button.
2. One of the "Channel Selection" buttons.
3. "Volume" Up / Down buttons.
4. "TV/AV" button.

## (28) TV/AV Selector

### "TV" mode

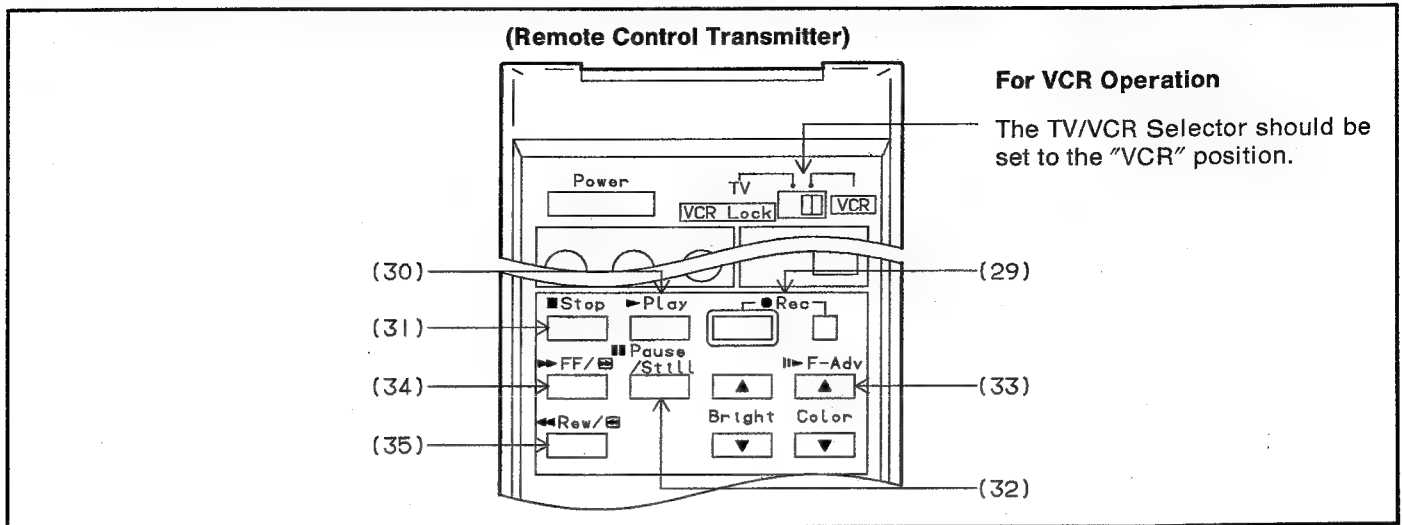
To receive ordinary broadcasting stations or for VCR playback when the RF output signal is applied to the antenna terminal.

The reception signals can be taken out from the AUDIO OUT and VIDEO OUT terminals for recording or monitoring.

### "AV" (Audio-Visual) mode

For VCR playback or monitoring when the composite signals are applied to the VIDEO IN and AUDIO IN terminals.

## Remote Control Operation (for VCR)



### **(29) Rec**

Recording is started by pressing these buttons.

### **(30) Play**

Press this button to playback the tape.

### **(31) Stop**

Press this button to stop the tape.

### **(32) Pause / Still**

Press to stop the tape during playback.

A still-picture will be shown.

Press this button again to release pause.

### **(33) F-Adv.**

While in the still mode, press this button to advance the picture one frame at a time.

### **(34) FF**

Press this button to fast forward the tape.

During the playback mode, holding this button down will allow you to view the picture in the forward direction rapidly.

(This remote control allows SEARCH operation only if the VCR remote control has a "FF" button.)

### **(35) Rew**

Press this button to rewind the tape.

During the playback mode, holding this button down will allow you to view the picture in reverse rapidly.

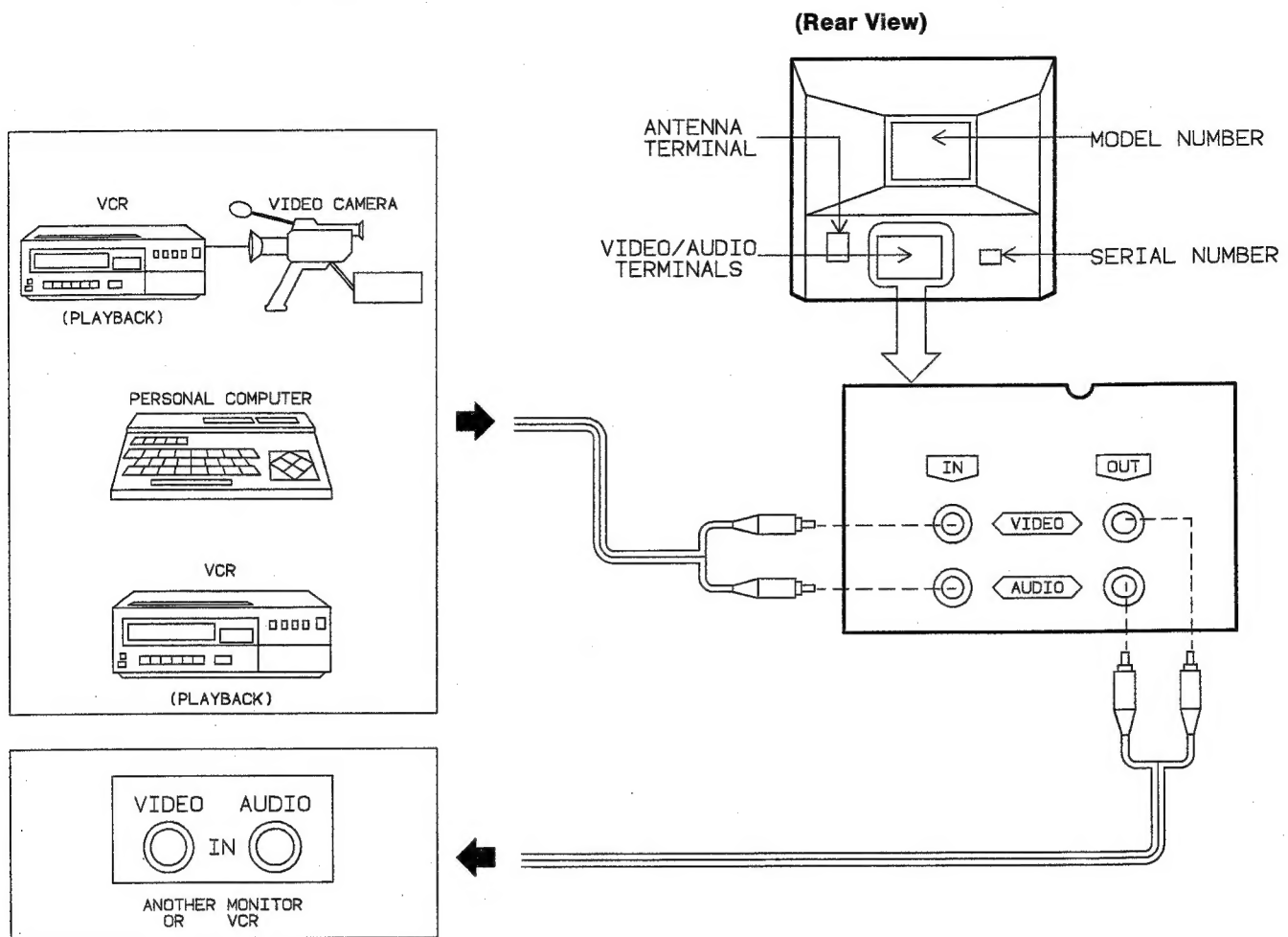
(This remote control allows SEARCH operation only if the VCR remote control has a "REW" button.)

### **Note:**

Some of Panasonic VCR does not operate with this transmitter because of different transmission signal.



## Connections (Video/Audio Terminals)



### Connecting Optional Equipment

#### Explanation of VIDEO IN/OUT Terminals

This TV set has VIDEO IN/OUT Terminals so that it can be used both as a TV tuner and as a monitor. When the System Selector is set to AUTO and the TV/AV Selector is set to AV, the TV set automatically adjusts for PAL or NTSC system according to the signal fed to the VIDEO IN Terminal. When the NTSC signal is fed to the VIDEO IN Terminal, for example, the TV set automatically adjusts for the NTSC system, the picture appears on the TV screen and this same NTSC signal is delivered from the VIDEO OUT Terminal.

#### TV mode:

The signal, which is applied to antenna terminal, is taken out from "VIDEO/AUDIO OUT" terminals for monitoring or recording.

#### AV mode:

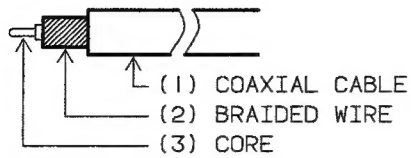
The signal, which is applied to "VIDEO/AUDIO IN" terminals, is taken out from "VIDEO/AUDIO OUT" terminals for monitoring or recording.

#### Note:

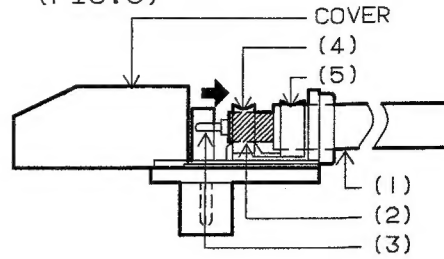
Never connect the same video recorder to both the VIDEO IN and VIDEO OUT Terminals on this TV set, as this would cause malfunction and could lead to accidents.

# How to Connect an External Antenna

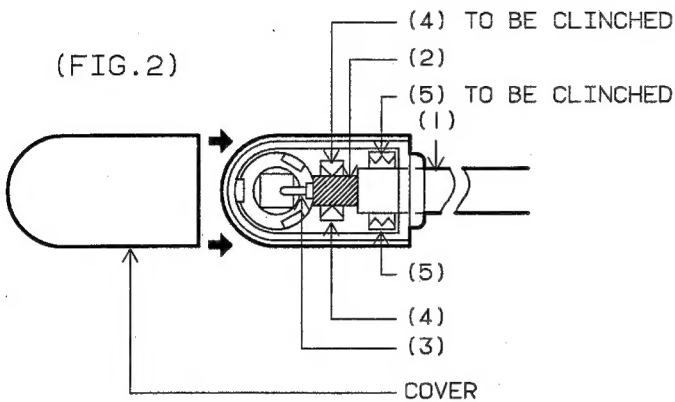
(FIG. 1)



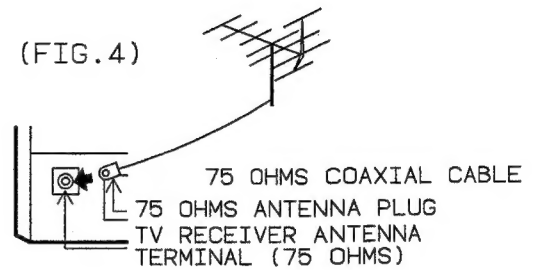
(FIG. 3)



(FIG. 2)



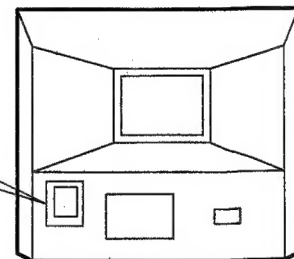
(FIG. 4)



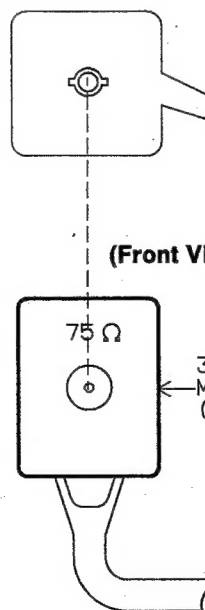
## Antenna Connections

(Outdoor Antenna)  
Connections (Example)

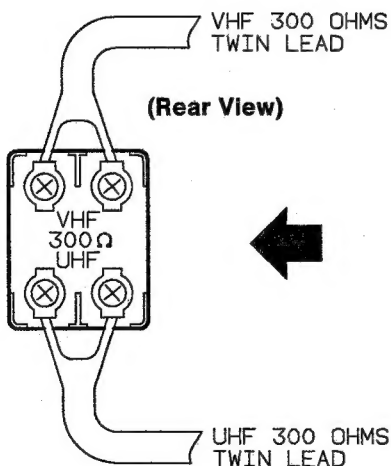
(Rear View)



(Front View)

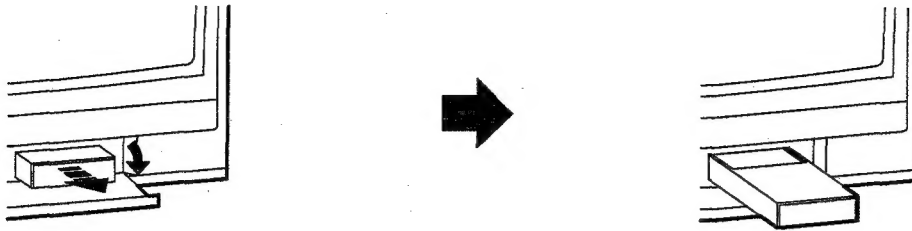


(Rear View)



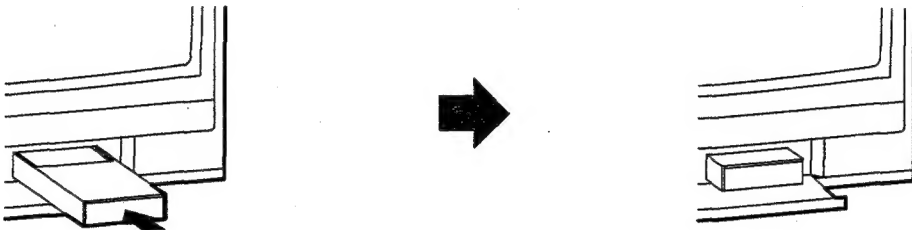
## How to Remove and Insert the Transmitter

### Remote Control Transmitter Removal :



Push the transmitter to release it.

### To Insert the Transmitter :



Push the transmitter all the way into the remote control pocket, as shown.

# Specifications

Power Source : AC120V ~ 240V, 50/60Hz

Power Consumption : 86 W (Normal)  
Stand-by condition 14 W (AC220V, 50Hz)

| Receiving Signal                                                                                                                       | Receiving Channels                                                                             |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| TV broadcasting in PAL B.G.I<br>(AFN-EUROPE by NTSC)                                                                                   | VHF E2ch ~ E12ch<br>UHF E21ch ~ E69ch<br>CATV S1 ~ S3, M1 ~ M10, U1 ~ U10                      |
| TV broadcasting in the U.S.                                                                                                            | VHF 2ch ~ 13ch<br>UHF 14ch ~ 69ch                                                              |
| Standard Cable TV Signal<br>ICC Cable TV Signal<br>(Incremental Coherent Carrier)<br>HRC Cable TV Signal<br>(Harmonic Related Carrier) | VHF BAND (2 ~ 6, 5A)<br>MID BAND (A-2, A-1, A ~ I)<br>HIGH BAND (7 ~ 13)<br>SUPER BAND (J ~ W) |

Audio Output : 2W (Max.)

Picture Tube : 20 inches (51cm) measured diagonally, 90° deflection

Connecting Terminals : Video In/Out: 1Vp-p, 75  $\Omega$   
Audio In: 300 mVrms.  
Audio Out: 100 mVrms.

Dimensions : Height: 19-1/8" (48.5cm)  
Width: 19-3/4" (52.0cm)  
Depth: 18-7/8" (48.0cm)

Weight : 55-1/8 lbs. (25 kg.)

Included Accessories : AC Plug Adaptor x 1  
Remote Control Transmitter x 1  
Battery x 2  
300  $\Omega$  to 75  $\Omega$  Matching Transformer x 1  
75  $\Omega$  Antenna Plug x 1

Country of Origin: Japan

## Customer's Record

The serial number of this product may be found on its rear cover. You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid in identification in the event of theft or loss.

Model Number **TC - 520NPR** Serial Number \_\_\_\_\_

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